

## EXPLANATION OF PLATE 46.

*Choanephora cucurbitarum* (Berk).

Fig. 1. Mature fertile hypha bearing about twelve secondary sporiferous heads,  $\times 100$ .

Fig. 2. Terminal portion of a similar hypha; the spores just beginning to bud from the surface of the head,  $\times 100$ .

Fig. 3. Primary head from which the fertile ramuli are developing, one at the right furcate,  $\times 390$ .

Fig. 4. Primary head from which the ramuli have fallen leaving it clathrate  $\times 390$ .

Fig. 5. Sporiferous secondary head,  $\times 175$ .

Fig. 6. Spores, 860.

*Monoblepharis polymorpha* Cornu.

Fig. 7. Three oogonia the two upper with mature exogynous oospores,  $\times 390$ .

Fig. 8. A zoosporangium and oogonium, 390.

*Monoblepharis* sp.

Fig. 9. Zoosporangium,  $\times 500$ .

*Monoblepharis brachyandra* Lagerh.

Fig. 10. Two mature oogonia above an intercalary antheridium,  $\times 390$ .

Fig. 11. Zoosporangium with abnormally developed antheridium at right,  $\times 930$ .

Fig. 12. Biciliate zoospore,  $\times 930$ .

The figures are drawn with camera lucida and slightly reduced from the approximate magnifications indicated.

RECENTLY RECOGNIZED SPECIES OF CRATAEGUS IN  
EASTERN CANADA AND NEW ENGLAND, — II.

C. S. SARGENT.

## § MOLLES.

*Crataegus exclusa*, n. sp. *Crataegus Pringlei*, Sargent, RHODORA, iii. 21 in part (1901). —

Leaves ovate, acute or acuminate, rounded, truncate or broadly cuneate at the glandular entire base, coarsely doubly serrate above, with straight gland-tipped teeth, and divided into three or four pairs of short acute lateral lobes; when they unfold coated above and on the midribs and veins below with long pale hairs, more than half grown, membranaceous and still slightly villose or nearly glabrous on the upper surface when the flowers open; at maturity thick and firm in



texture, dark yellow-green above, pale below, 6–7 cm. long, 5–6 cm. wide, with slender yellow villose midribs and veins; petioles slender, villose, sparingly glandular toward the apex, with large dark deciduous glands, often red in the autumn, 1.5–2.5 cm. in length; stipules linear, glandular, caducous. Flowers on stout pedicels, in broad compound many-flowered densely villose corymbs; bracts and bractlets linear to oblong-obovate, acuminate, glandular-serrate, caducous; calyx-tube narrowly obconic, covered with long thickly matted white hairs, the lobes narrow, acuminate, glandular-serrate, with bright red glands often only above the middle, villose, reflexed after anthesis; stamens 10; anthers rose color; styles 3–5, often furnished at the base with small tufts of pale hairs. Fruit drooping or erect on short stout pedicels, in many-fruited villose clusters, oblong, gradually narrowed to the full and rounded more or less hairy ends, or rarely ovate, bright cherry red, lustrous, marked by few large dark dots, 1.7 to 1.8 cm. long, about 1.3 cm. wide; calyx comparatively small, sessile, with a deep narrow cavity and linear acuminate lobes gradually narrowed from broad bases, coarsely glandular-serrate, villose-pubescent, dark red on the upper side near the base, reflexed and closely appressed or rarely erect and incurved; flesh thick, bright yellow, slightly juicy; nutlets 3–5, thin narrowed and acute at the ends, irregularly ridged on the back, with a high rounded ridge, 7–8 mm. long.

A broad shrub with numerous stout much-branched stems covered with ashy gray bark, 3–4 m. in height, and comparatively slender conspicuously zigzag branchlets marked by many small oblong pale lenticels, dark orange-green and covered when they first appear with scattered pale caducous hairs, bright red-brown and lustrous during their first season, darker reddish brown the following year, and finally ashy gray, and armed with numerous stout nearly straight bright chestnut-brown lustrous ultimately gray spines 3.5–5 cm. in length. Flowers during the last week of May. Fruit ripens late in September.

VERMONT: Open grassy slopes of Bald Mountain, Clarendon and Shrewsbury, *W. W. Eggleston*, September 30, 1899, May and August 1900, May, August and October 1901; *C. S. Sargent*, June and September 1900.

In the first account of *Crataegus Pringlei* the anthers were described as yellow. This mistake was subsequently corrected; and it now seems desirable to separate from that species the shrubby plants of Bald Mountain which I formerly considered as representing an extreme form of *Crataegus Pringlei*. *Crataegus exclusa* is a much more hairy plant, with stouter pedicels and much thicker broadly ovate not oval leaves, which show none of that tendency to droop



and become convex by the infolding of the two sides, a peculiarity which makes it always easy to recognize *Crataegus Pringlei* in the field. The habit of the Bald Mountain plant is also quite different from that of *Crataegus Pringlei* which is arborescent, with a tall well formed trunk.

CRATAEGUS ANOMALA, Sargent, RHODORA, iii. 74 (1901); *Silva N. Am.* xiii. 187, t. 670. During the season of 1902 Mr. J. G. Jack has found a number of trees of this species formerly known only in a few individuals, near Caughnawaga and on Ile Perrot in the St. Lawrence River. What appears to be *Crataegus anomala* has been collected at Crown Point, New York, by W. W. Eggleston, May 1902, and by Charles H. Peck, May and September 1902, and at Hampton, New York, by W. W. Eggleston, May and October 1902.

#### § LOBULATAE.

CRATAEGUS LOBULATA, Sargent, RHODORA, iii. 22 (1901); *Silva N. Am.* xiii. 117 t. 75. A large tree of this species just out of bloom, with unusually hairy corymbs, was found on the 31st of May, 1902, by Ezra Brainerd and C. S. Sargent in a meadow by the road leading from Great Barrington to Alford, Massachusetts. *Crataegus lobulata* has also been collected at Stanford, Connecticut, by E. H. Eames; in May and September 1901, and September 1902.

**Crataegus Robesoniana**, n. sp. Leaves ovate, acute or acuminate rounded, truncate or rarely broadly cuneate at the base, sharply and often doubly serrate, with straight gland-tipped teeth, and divided into numerous short acute lateral lobes; nearly fully grown when the flowers open and covered above with short rigid pale hairs; at maturity membranaceous, light yellow-green and scabrous on the upper surface, pale and glabrous on the lower surface with the exception of a few short hairs scattered along the light yellow midribs and primary veins, 8-9 cm. long, 7-8 cm. wide, or on leading shoots often 10 cm. long and 9 cm. wide; petioles slender, nearly terete, occasionally glandular, often tinged with red in the autumn, 3-4 cm. long. Flowers about 1.5 cm. in diameter on stout pedicels covered with long white reflexed hairs, in very compact few-, usually 5-flowered compound corymbs; bracts and bractlets linear to oblong-obovate, glandular, caducous; calyx-tube narrowly obconic, villose, the lobes gradually narrowed from broad bases, linear, long-pointed, irregularly glandular-serrate, villose, reflexed after anthesis; stamens 10; anthers small, rose-purple; styles 4 or 5. Fruit in erect few-fruited clusters, oblong, full and rounded at the ends, bright scarlet, lustrous, marked by few large dots about 2 cm. long and 1 cm. wide; calyx sessile,



with a broad shallow cavity, and narrow elongated appressed lobes; flesh thick, juicy, pale yellow; nutlets 4 or 5, acute at the ends, slightly and irregularly ridged on the narrow back, 6–7 mm. long.

A tree 7 or 8 m. in height, with a tall trunk sometimes 3 dm. in diameter, stout wide-spreading or ascending branches forming an open shapely head, and slender mostly unarmed branchlets marked by many small oblong pale lenticels, olive green when they first appear, dull reddish brown during their first season, and pale red-brown and lustrous the following year. Flowers during the last week of May. Fruit ripens the first of September and soon falls.

MASSACHUSETTS: Borders of woods, usually in low moist soil. Lenox, *Brainerd* and *Sargent*, May 30, 1902; *C. S. Sargent*, September 8, 1902.

This species which is closely related to *Crataegus lobulata*, Sargent, differs from it in its compact few flowered corymbs, in the peculiar hairs which cover the pedicels of the flowers, in its remarkably thin leaves which are shorter in proportion to their length, much less deeply lobed and very rough on the upper surface, and in its early ripening fruit which falls at least a month earlier than that of *Crataegus lobulata*. The tree which should be considered the type of this species is growing on the estate at Lenox which was owned for many years by the late William R. Robeson of Boston, and was probably moved at least forty or fifty years ago from the woods in the neighborhood to its present position close to the front door of the house. The name of a family of Pennsylvania and Massachusetts which has produced at least four generations of intelligent and cultivated lovers of trees can thus properly be associated with this handsome plant.

***Crataegus polita*, n. sp.** Leaves ovate to oval, acute or acuminate, full and rounded, or on vigorous shoots sometimes truncate or subcordate at the base, slightly and often doubly serrate, with straight glandular teeth, and divided into numerous short acuminate lateral lobes; tinged with red and covered on the upper surface with short lustrous white hairs when they unfold, nearly fully grown when the flowers open and then membranaceous, light yellow-green and scabrate above and pale and glabrous below; at maturity thick and firm in texture, smooth and dull dark yellow-green on the upper surface, light yellow-green on the lower surface, 7–9 cm. long, 6–7.5 cm. wide, with slender yellow midribs deeply impressed above and four or five pairs of thin primary veins running to the points of the lobes; petioles slender, nearly terete, sparingly glandular toward the apex, often red in autumn, 2.5–3 cm. long. Flowers about 1 cm. in diameter on elongated slender pedicels, in broad open thin-branched glabrous



compound corymbs; bracts and bractlets small, linear, acuminate, glandular-serrate, caducous; calyx-tube narrowly obconic, more or less deeply tinged with red, the lobes narrow, elongated, acuminate, coarsely glandular-serrate, red at the apex, reflexed after anthesis; stamens 5; anthers rose-purple; styles 3 or 4. Fruit in erect few-fruited clusters, subglobose to short-oblong or rarely broadly obovate, bright, cherry red, lustrous, often blotched with green or yellow, marked by few large pale dots, 1-1.3 cm. long, 9-12 mm. wide; calyx small and sessile, with a comparatively broad deep cavity and elongated lobes gradually narrowed from broad bases, coarsely glandular-serrate, red on the upper side near the base, spreading or incurved, often deciduous from the ripe fruit; flesh thick, pale yellow, dry and mealy; nutlets 3 or 4, thin, acute at the ends, prominently ridged on the back, with a high rounded ridge, about 7 mm. long.

A broad round-topped shrub 3-4 m. high with few or many much branched stems covered with pale gray bark, often much roughened near the ground, and slender slightly zigzag glabrous branchlets marked by many small lenticels, olive green slightly tinged with red when they first appear, bright reddish brown during their first season, darker the following year, and usually only slightly armed with stout straight bright red-brown spines from 2.5-5 cm. in length. Flowers about May 20th. Fruit ripens and begins to fall during the first week of September.

CONNECTICUT: Open rocky pastures near the Niantic River, East Lyme, *C. B. Graves*, May 26 and September 6, 1902. MASSACHUSETTS: hill west of the main street of Great Barrington, and roadside between Great Barrington and Alvord, *E. Brainerd* and *C. S. Sargent*, May 31, 1902; Great Barrington, *C. S. Sargent*, September 9, 1902.

CRATAEGUS HOLMESIANA, Ashe, Sargent *Silva N. Am.* xii. 119, t. 676. A form of this species with glabrous or pubescent corymbs, slightly larger flowers and fruit which ripens from ten to twenty days later than the form figured in *The Silva of North America*, is common near Montreal where *Mr. Jack* has found it in several stations; it is also common in the neighborhood of Toronto and at Rochester, New York.

**Crataegus fetalis**, n. sp. Leaves ovate, acute or acuminate, full and rounded at the broad base, sharply and except towards the base mostly doubly serrate, with straight gland-tipped teeth, and divided into three or four pairs of short acute lateral lobes; tinged with red and covered when they unfold with short pale hairs, and more than half grown when the flowers open and then membranaceous,